



GEROS-ISS: Innovative Ocean Remote Sensing using GNSS Reflectometry onboard the International Space Station

Wickert, Jens; Andersen, Ole Baltazar; Beyerle, George; Chapron, Bernard; Cardellach, Estel; Gommenginger, Christine; Høeg, Per; Jäggi, Adrian; Jakowski, Norbert; Kern, Michael

Total number of authors:
15

Published in:
Geophysical Research Abstracts

Publication date:
2014

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):

Wickert, J., Andersen, O. B., Beyerle, G., Chapron, B., Cardellach, E., Gommenginger, C., Høeg, P., Jäggi, A., Jakowski, N., Kern, M., Lee, T., Martin-Neira, M., Pierdicca, N., Shum, C. K., & Zuffada, C. (2014). Geros-ISS: Innovative Ocean Remote Sensing using GNSS Reflectometry onboard the International Space Station. *Geophysical Research Abstracts*, 16, [EGU2014-6226].

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.



GEROS-ISS: Innovative Ocean Remote Sensing using GNSS Reflectometry onboard the International Space Station

Jens Wickert (1), Ole Andersen (2), Georg Beyerle (1), Bertrand Chapron (3), Estel Cardellach (4), Christine Gommenginger (5), Per Hoeg (2), Adrian Jäggi (6), Norbert Jakowski (7), Michael Kern (8), Tony Lee (9), Manuel Martin-Neira (8), Nazzareno Pierdicca (10), Ck Shum (11), and Cinzia Zuffada (9)

(1) GeoForschungszentrum Potsdam (GFZ), Division 1, Potsdam, Germany (jens.wickert@gfz-potsdam.de), (2) Technical University of Denmark, (3) IFremer, France, (4) IEEC/ICE-CSIC, Institute of Space Sciences, Spain, (5) National Oceanography Center, Southampton, U.K., (6) University Bern, Switzerland, (7) German Aerospace Center, Germany, (8) European Space Agency, (9) Jet Propulsion Laboratory, Caltech, USA, (10) Sapienza University of Rome, Italy, (11) Ohio State University, USA

In response to an European Space Agency (ESA) announcement of opportunity the Geros-ISS (GEROS hereafter) proposal was submitted in 2011 and accepted by ESA to proceed to Phase A. Geros-ISS is an innovative ISS experiment primarily focused on exploiting reflected signals of opportunity from Global Navigation Satellite Systems (GNSS) at L-band to measure key parameters of ocean surfaces. Secondary mission goals are remote sensing of land/ice surface parameters and global atmosphere and ionosphere observations using the GNSS radio occultation technique. Geros will pioneer the exploitation of signals from Galileo and possibly other GNSS systems (GLONASS, QZSS, Beidou), for reflectometry and occultation, thereby improving the accuracy as well as the spatio-temporal resolution of the derived geophysical properties.

GEROS will contribute to the long-term S.I. traceable observation of the variations of major climate components of the Earth System: Oceans/Hydrosphere, Cryosphere/Snow, Atmosphere/Ionosphere and solid Earth/landcover changes with innovative and complementary aspects compared to current Earth Observation satellite missions. Geros will mainly provide mid- and low-latitude observations on submesoscale or longer oceanic variability with a focus on the coastal region, surface ocean currents, surface winds, wave heights for a period of at least ten years. These observations will lead to a better understanding of the climate system. Geros takes advantage of the capacious infrastructure onboard the ISS for the payload setup. Geros also provides a sensor calibration/validation option for other upcoming satellite missions including ISS-RapidScat, CYGNSS and FormoSAT-7/COSMIC-II.

The definition of the Geros mission and system requirements was completed end of 2013 and the industrial phase A studies are expected to start in early 2014. We overview the Geros mission and review the status of the experiment.